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**ABSTRACT**

The properties of a water-lain sedimentary deposit may be predicted at any location from a contour of constant deposit thickness. One embodiment of the method comprises (a) determining an outline of constant deposit thickness in a measured deposit, (b) determining the fluid flow properties at the inlet of the measured deposit, (c) determining a property of the deposit at any point inside the deposit from modeling the fluid flow. The properties of the deposit at any point may include the thickness of the sediment body, the size of the body, the shape of the body, and the grain size distribution at each point within the body, and any combination thereof.